

ABSTRACT OF THE DISCLOSURE

A soft magnetic film of the present invention is a plated film composed of Co and Fe, and columnar crystals extending in the film thickness direction are provided.

In the present invention, columnar crystals extending in the film thickness direction are provided so that an improvement in the surface roughness of the film surface and an improvement in the corrosion resistance can be achieved.

Furthermore, the saturation magnetic flux density B_s can also be improved by making the crystal fine and eliminating the need for addition of the noble metal element. That is, according to a CoFe alloy of the present invention, both the corrosion resistance and the saturation magnetic flux density B_s can be improved, and specifically, the above-mentioned saturation magnetic flux density B_s can be increased to 2.35 T or more.